

## Case Report

# Urothelial carcinoma in the ureteral stump of a nephrectomized patient by kidney exclusion: a case report

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## ABSTRACT

Urothelial carcinoma of the upper urinary tract is a rare and potentially aggressive disease. It rarely affects the ureter and is quite uncommon in the ureteral stump of a patient who has already undergone nephrectomy for benign disease. We, herein, describe a case of a male patient who underwent total left nephrectomy owing to renal exclusion. After three years, owing to an episode of hematuria, he was diagnosed with a urothelial tumor of the ureteral stump, and he underwent ureterectomy and excision of the bladder cuff. The involvement of the ureteral stump by urothelial tumor is an extremely rare event and is normally associated with poor prognosis owing to the delay in diagnosis inherent to atypical presentation. The most common symptom is hematuria. Pain is uncommon because of the absence of a renal unit and consequently, hydronephrosis. Although rare, we must remember the possibility of the appearance of primary tumors in the ureteral stump and maintain a high degree of diagnostic suspicion to avoid diagnosis in advanced stages.

**Keywords:** Simple nephrectomy, Ureteral tumor, Ureteral stump

## INTRODUCTION

Urothelial carcinoma of the upper urinary tract is a rare disease, accounting for 5–10% of all urothelial carcinomas. Exclusive involvement of the ureter is even rarer, presenting approximately half the incidence of renal pelvis tumors.<sup>1</sup>

The principal risk factor associated with this neoplasm is smoking; however, other risk factors, such as exposure to aromatic amines and radiation therapy, are known. The occurrence of a primary urothelial tumor of the ureter in the ureteral stump of a patient who has already undergone nephrectomy for benign disease is quite rare.<sup>2,3</sup>

In these cases, hematuria is also the main symptom; however, pain is uncommon owing to the absence of a renal unit and hydronephrosis. In these situations, the

diagnosis is usually delayed, owing to the atypical presentation, determining a poor prognosis. A high degree of suspicion in these cases is important for early diagnosis.<sup>4</sup>

Herein, we describe a case of locally advanced urothelial tumor of the ureteral stump in a nephrectomized patient 3 years before by renal exclusion, being diagnosed by computed tomography after an episode of hematuria.

## CASE REPORT

A 73-year-old man had a history of controlled hypertension and he was an ex-smoker. He was diagnosed with the International society of urological pathology (ISUP) grade 3 prostate adenocarcinoma in 2011 and was treated with radiotherapy associated with androgenic deprivation therapy, which progressed well, with no signs of recurrence.

In 2016, he underwent total left nephrectomy because of functional exclusion owing to polycystic degeneration of the kidney. The procedure was performed using videolaparoscopy without any complications and good patient evolution was observed in the subsequent years.

After 3 years, in 2019, after an episode of hematuria, the patient underwent contrast-enhanced computed tomography, which revealed a solid nodule in the left ureteral stump, with no signs of lymph node or metastatic disease. Thus, a surgical approach was proposed with laparoscopic distal ureterectomy.

The procedure was initiated by cystoscopy, which did not show any bladder lesions; however, the urothelial tumor sprouting through the left ureteral meatus was detected, which required open surgery (Figure 1).



**Figure 1: Cystoscopic image showing a tumor sprouting through the left ureteral meatus.**

Open ureterectomy was performed, with wide bladder cuff excision, without any complications. The ureteral nodule was bulky, with involvement of periureteral fat and the psoas muscle, configuring a T4 stage (Figure 2).

In the postoperative period, the patient progressed well, with mild hematuria in the first 24 hours, with spontaneous resolution. The pelvic drain had low output, and was removed on the third day after surgery. The next day, the patient was discharged with a delayed bladder catheter to be removed on the outpatient return.

On the first outpatient return, the patient was fine, with no complaints. The bladder catheter was removed. Histopathological examination of the surgical specimen revealed a urothelial carcinoma with a compromised lateral margin and compatible with a T4 stage.

The patient was referred for adjuvant chemotherapy with cystplatin and gemcitabine, with good acceptance. He underwent early cystoscopy that showed only an area of hyperemia in the topography of a cuff resection, which was biopsied and no neoplasm was detected. The patient progressed well and was followed up with cystoscopies

and computed tomography scans that did not identify signs of local or distant recurrence.



**Figure 2: Surgical specimen: distal ureterectomy product with bladder cuff excision.**

## DISCUSSION

Urothelial carcinoma of the upper tract represents only 5–10% of all urothelial carcinomas. The ureter is a less common site for the occurrence of this cancer. These tumors tend to have a more aggressive presentation, with most cases being diagnosed in advanced stages.<sup>1</sup>

The most important risk factor for these tumors is smoking. Other associated factors include exposure to aromatic amines, consumption of aristolochic acid, recurrent infections, and radiation therapy. In our case, radiotherapy for prostate cancer may have been a causative factor in association with smoking.<sup>2</sup>

Simple total nephrectomy can be performed in several benign diseases, such as kidney exclusions, trauma, renal tuberculosis, and pioniophrosis, among others. In this surgery, the ureter is not completely resected, leaving a ureteral stump that can be the site of primary tumor development.<sup>5</sup>

The appearance of urothelial carcinoma in the ureteral stump is a rare condition, with little known incidence in the literature. In these patients, hematuria is also the most common symptom; however, owing to the rarity of this presentation, diagnosis in these cases is delayed. These patients usually do not complain about significant pain because of the absence of the renal unit and hydronephrosis.<sup>6,7</sup>

The etiology and pathogenesis of urothelial tumors in closed ureteral stumps are poorly understood. It can occur because of chronic inflammation, reflux, or exposure to carcinogenic substances and pelvic radiotherapy.<sup>8</sup>

These patients require a high degree of diagnostic suspicion to avoid diagnosis in advanced stages when the prognosis is poor. Despite the absence of a tumor in the

nephrectomy surgical specimen, the follow-up of these patients with imaging tests is important for an earlier diagnosis.<sup>4</sup>

In the absence of widespread disease and comorbidities that prevent surgery, these patients deserve surgical treatment with ureterectomy and bladder cuff excision, with the possibility of neoadjuvant or adjuvant chemotherapy.<sup>9</sup>

## CONCLUSION

Urothelial carcinoma of the ureter is a rare and aggressive disease that requires early diagnosis and treatment. Atypical presentations, as in this case, tend to delay the diagnosis and compromise the prognosis. Thus, a high degree of suspicion for this type of pathology is required.

Although uncommon, attention should be paid to the possibility of urothelial tumors in the ureteral stumps of patients who have already undergone nephrectomy owing to renal cell cancer or benign causes, and evaluation of the follow-up imaging examinations should be performed.

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